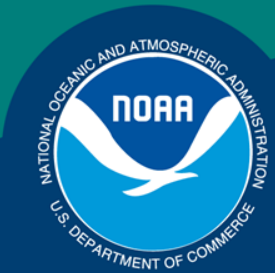


Science, Service, Stewardship



NOAA Initiatives Addressing Large Whale Entanglements

Christina Fahy

National Marine Fisheries Service
West Coast Regional Office
Protected Resources Division

**NOAA
FISHERIES
SERVICE**

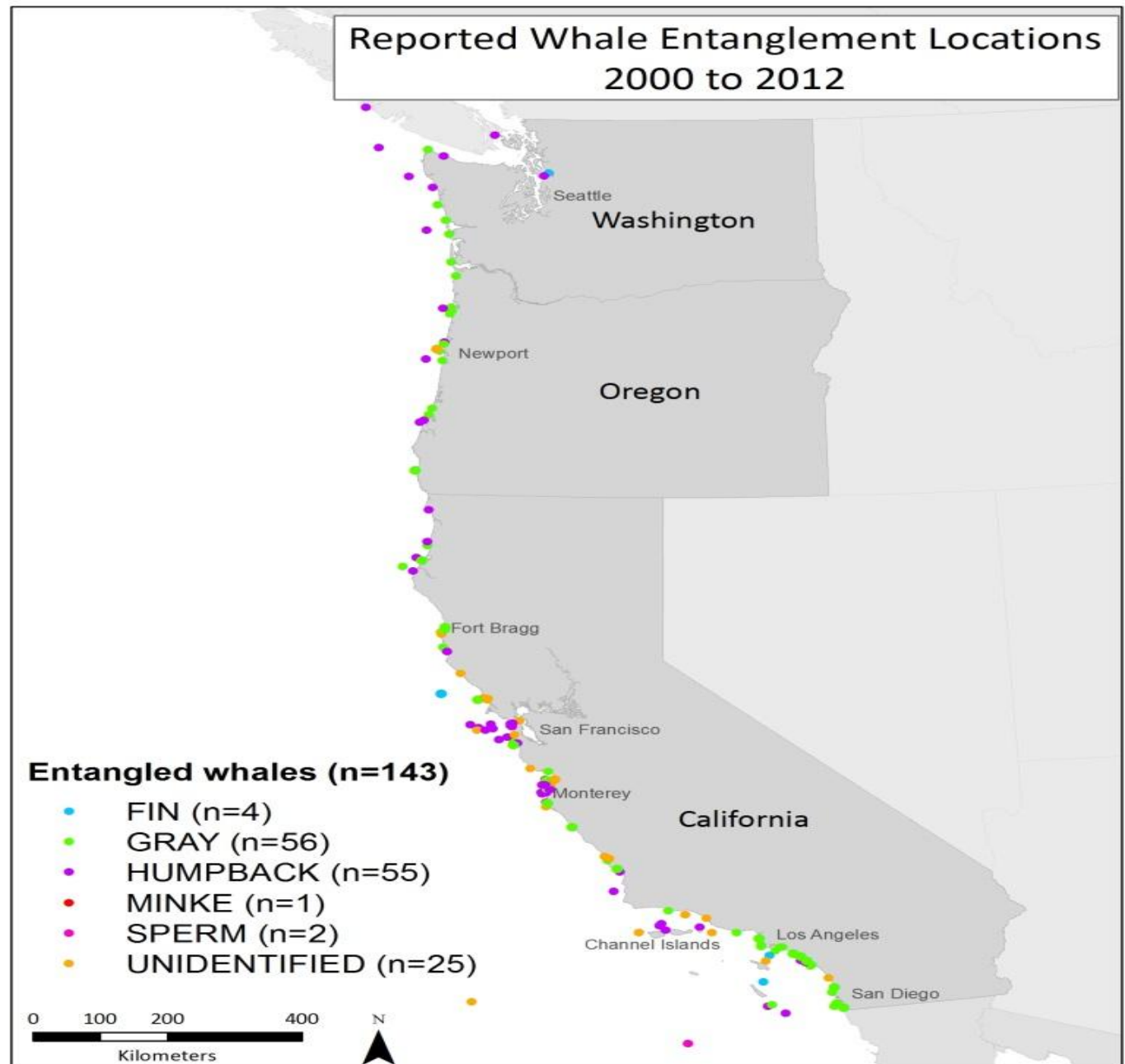


NMFS Mandates

Marine Mammal Protection Act – reduce marine mammal serious injuries/mortalities in commercial fisheries to insignificant levels

Endangered Species Act – recover endangered and threatened species

All large whales are protected under the MMPA and most are listed under the ESA





Challenges

Reports are minimum estimates

- **Estimates that 3.9-13% of gray whales that die (natural/human-caused) in a given year end up stranding and being reported (Punt and Wade 2012)**
- **Low to no observer coverage in pot/trap**
- **Reports of entangled whales never sighted again**
 - **Conditions, rugged coastline, low human population in areas, etc.**
- **Gear is often not identified (“crab pot gear”)**
- **Reports may not reflect area of interaction**



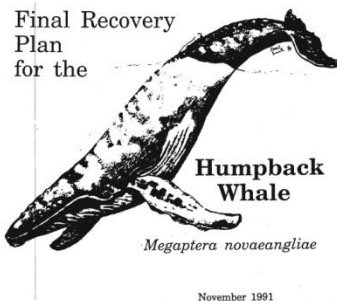
West Coast Priorities for Addressing Large Whale Entanglements

- Characterize fixed gear fisheries (“Gear Guide”)
 - Description
 - Configuration
 - Geographic range of effort
 - Season/management structure
- Assess risk of fixed gear fisheries and large whales (humpback, fin, blue, sperm and gray whales) individually and at the stock-level
- Improve reporting, response, outreach and education



Implement priority activities of large whale Recovery Plans

Priority 2 - An action that must be taken to prevent a significant decline in population numbers or habitat quality, or to prevent other significant negative trends short of extinction. Reducing fishery interactions – all Priority 2 in RPs



U.S. Department of Commerce
National Oceanic and
Atmospheric Administration
National Marine Fisheries Service
Office of Protected Resources



RECOVERY PLAN FOR THE BLUE WHALE (BALAENOPTERA MUSCULUS)

Prepared by
Randall R. Reeves, Philip J. Clapham,
Robert L. Brownell, Jr., and Gregory K. Silber
for the
Office of Protected Resources
National Marine Fisheries Service
National Oceanic and Atmospheric Administration
Silver Spring, Maryland

July 1998

FINAL RECOVERY PLAN FOR THE SPERM WHALE (Physeter macrocephalus)



Office of Protected Resources
National Marine Fisheries Service
National Oceanic and Atmospheric Administration
Silver Spring, Maryland

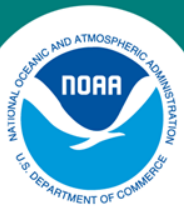
December 2010

FINAL RECOVERY PLAN FOR THE FIN WHALE (Balaenoptera physalus)



Office of Protected Resources
National Marine Fisheries Service
National Oceanic and Atmospheric Administration

July 2010



Fixed Gear Guide – CA/OR/WA

Fixed Gear Guide: California, Oregon, and Washington Commercial Fisheries Trap/pot, gillnet, and longline/set line



U.S. West Coast Quick Reference Gear Guide

	Line		Buoy/Float			Trap				Net	
	Floating	Sinking	Bullet	Poly Ball	High Flyer	Round	Rectangle	Metal	Plastic	Twine	Mono-filament
Trap: California Nearshore Live Fish	X		X				X	X			
Trap: Coonstripe Shrimp	X		X	X	X	X		X			
Trap: Dungeness Crab	X		X			X		X			
Trap: Hagfish	X			X	X				X		
Trap: Rock Crab	X		X	X		X	X	X	X		
Trap/Set longline: Sablefish	X	X		X	X	X	X	X			
Trap: Spiny Lobster	X		X					X	X		
Trap: Spot Prawn	X			X	X	X	X	X			
Set longline: Pacific Halibut											
Set Gillnet: California Halibut/White Seabass	X	X		X	X					X	X
Drift Gillnet: Small mesh	X	X		X	X						X
Drift Gillnet: Large mesh	X	X		X	X					X	

Special Buoy Marking Requirements

California buoy marking	Fishery
License number + "B"	Sablefish
License number + "Z"	Other Finfish
License number + "P"	Lobster

Oregon & Washington Dungeness crab buoy tags
Implemented as part of a trap limit system. Tag is attached to the first buoy from the trap. (See photos)



* Unless otherwise noted, photos taken by Lauren Seitz, NMFS

Line types

Floating line

- Usually made of polypropylene or other high strength fiber like PolyesterTM, Blue SteelTM



Sinking line

- Usually a combination of polypropylene with nylon, polyester, or a lead core for negative buoyancy



Buoy/Floats

Bullet Buoys

- Varying sizes (diameter x length): 5"x11", 6"x14", 7"x15" or 8"x15"
- Provides flotation to trap float line



Poly Ball (Polyform)

- Size range (diameter x length):
 - Round: 11" x 15" to 39" x 54"
 - Oblong: 8.6" x 19" to 15.5" x 37"
- Used as flotation of endline and for marking terminal end of strings of traps. Also as flotation for top of drift gillnet.
- Color: orange is most common, but a wide variety exists



High Flyer with Float and Flag

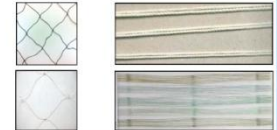
- Attached, as a marker, to terminal end of a string of traps, longline, or gillnet
- Required in Washington and Oregon on all longlines and trap gear



Net mesh

Nylon twine mesh

- Color: brown, green, tan, or white
- Multifilament, three twisted strands



Mono-filament mesh

- Color: many colors, including clear
- Single strand of material

Report injured, entangled, stranded or ship-struck whales to the 24/7 Hotline: (877) SOS-WHAL 877 767-9425

This quick reference sheet was produced by NOAA's NMFS Southwest Regional Office's Marine Mammal/Sea Turtle Team and is intended to be a supplement to the Fixed Gear Guide: California, Oregon, and Washington Commercial Fisheries available on the Southwest Region Office's website at: http://swr.nmfs.noaa.gov/psd/fixed_gear.htm





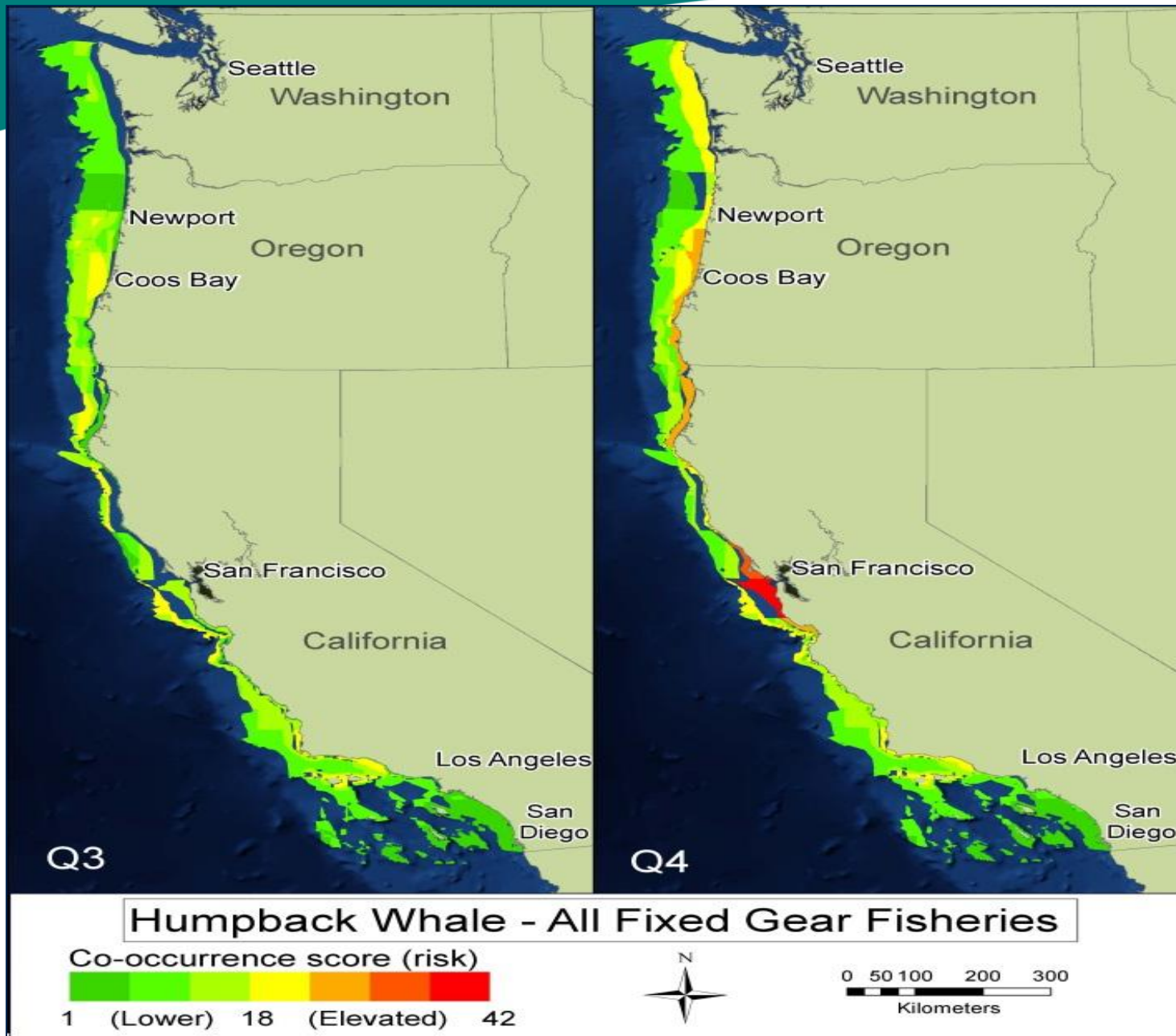
Risk Assessment Publication Sept 2013



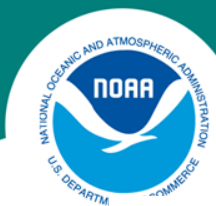
“Understanding the co-occurrence of large whales and commercial fixed gear fisheries off the west coast of the United States” NOAA-TM-NMFS-SWR-044; Saez et al. 2013

http://www.westcoast.fisheries.noaa.gov/protected_species/marine_mammals/fisheries_interactions_assess_risk.html

NOAA
FISHERIES
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NOAA FISHERIES SERVICE



REPORT ENTANGLED WHALES



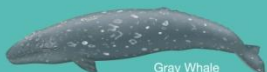
Timely Reporting Can Help

Ocean users in the Northwest have an important role in helping entangled whales. In Washington and Oregon call the NOAA Fisheries entanglement reporting hotline at 1-877-SOS-WHALE (1-877-767-9425). The back of this card outlines important information to help determine an appropriate response. Prompt reporting is the best way to assist an entangled animal.

Safety First! Whales in distress may act unpredictably, close approach is not advised. Do not attempt disentanglement without training and authorization. Try to get video or photos showing the entangling gear. Please be aware that it is not possible or necessarily appropriate to respond to every entangled whale. To help you with species identification, the two whale species shown below are common to the Northwest Region and have been involved in previous entanglement cases.



Humpback Whale



Gray Whale

1-877- SOS WHALE (1-877-767-9425)



Entangled Whale?
1-877-SOS-WHALE

Timely Reporting Can Help

Prompt reporting is the best way to help entangled whales. Reports will be relayed to regional responders. Authorized personnel will advise you on what to do next. The following information will aid responders in assessing the case and planning an appropriate response.

DATE _____ TIME OF LAST SIGHTING _____

NAME _____ VESSEL/CALL SIGN _____

PHONE NUMBER (CELL) _____

GENERAL LOCATION (Landmarks) _____

SPECIFIC LOCATION _____ "N" _____ "W"

SPECIES (If known, use guide) _____

APPROXIMATE SIZE/AGE CLASS _____

NATURE OF DISTRESS (Describe in detail what you see, colors, numbers, type of line)

GENERAL CONDITION OF THE WHALE _____

WEATHER/SEAS (Wind, swell, visibility) _____

IS THE ANIMAL MOVING? Y/N speed _____ heading _____

CAN YOU STAND BY? Y/N PHOTOS? Y/N VIDEO? Y/N

To report injured or stranded whales, dolphins, porpoises, seals and sea lions, or to report incidents of marine mammal harassment, please call NOAA's 24/7 hotline at 1-800-853-1964.



1-877- SOS WHALE (1-877-767-9425)

Outreach/Education

ATTENTION!

REPORT ENTANGLED WHALES
Prompt reporting is the best way to assist
an entangled animal.



**DO NOT APPROACH OR ATTEMPT
DISENTANGLEMENT.**

Report All Entangled Whales in Washington and Oregon
to the Entanglement Reporting Hotline:

1-877-SOS-WHALE
(1-877-767-9425)



18"x 24" w/0.75" r. corners & (8)0.125" holes
2 colors, Black & Red
on White Polydura 55
Qty: 50

COLE & Pumps & Dies
4401 Center Street • Tacoma, WA 98409
Phone 253-864-4300 • Fax 253-864-1240

ARTWORK PROOF
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ARTWORK: 30025A

Please proof of text and graphics
elements COMPLETELY
We will print what you have approved.
DATE: 3/21/11 BY: 43145
ARTWORK: 30025A
Please sign and return



Whale Entanglement Fact Sheet

NOAA FISHERIES

Report large whales in distress to either:

1-(877) SOS-WHale
(767-9425)
24/7 hotline

Hail the United States Coast Guard on **VHF CH-16**

Ocean users play an important role in efforts to save whales in distress from pain, deformity, and death.

Safety first!
Entangled whales are unpredictable and potentially dangerous for would-be rescuers and the animal. **Stay a minimum of 100 yards away.**

Prompt Reporting
Prompt reporting of injured, entangled, and ship-struck whales is the best way to help the distressed animal.

Stay with the animal
If you are able to safely do so, stay with the animal until trained help arrives.

Trained Teams
California has a network of highly trained and experienced teams authorized (NMFS permit #632-1489) to respond to whales entangled in fishing gear and marine debris.

Whale Entanglements off California Fact Sheet



The concern

Entanglement of marine mammals, particularly large whales, in fishing gear and marine debris is a concern because of the potential impacts to marine mammals (individually and at a stock/population level), the fishing industry, and the environment.

Commercial fishery estimated average bycatch from 1990-1999¹:

- **World-wide:** 307,753 cetaceans² per year
- **United States:** 3,029 cetaceans² per year (1% of global estimate)

Reported large whale entanglements

- **U.S. west coast (California/Oregon/Washington):** an average of **11** large whales³ reported as entangled per year from 2000-2012⁴
 - Actual number of entangled whales is unknown; reports are based on opportunistic sightings reported to the National Marine Fisheries Service (NMFS) and the disentanglement response networks, also from NMFS commercial fishery observers
- Commercial fishermen have been actively engaged with NMFS on developing methods to reduce interactions with marine mammal along the west coast
- Gray (*Eschrichtius robustus*) and humpback (*Megaptera novaeangliae*) were the most frequently reported entangled whale species
- **California:** an average of **8** large whale entanglement reports per year from 2000 to 2012⁴

¹ Read A., P. Drinker, and S. Northridge. 2006. Bycatch of Marine Mammals in U.S. and Global Fisheries. Conservation Biology Volume 20, No. 1, 163-169

² Whales, dolphins, and porpoises

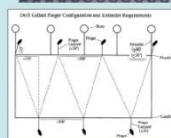
³ West coast large whales include: blue, fin, gray, humpback, minke, north Pacific right, sei, and sperm whales; reported entangled whale species include: fin, gray, humpback, minke, and sperm

⁴ NMFS whale entanglement databases: Southwest Region (California), Northwest Region (Oregon and Washington)

NOAA Fisheries | Whale entanglements off California

Conservation case study: Gillnet modifications to reduce entanglements

- A Pacific Cetacean Take Reduction Team was formed in 1996 and led to requirements for the placement of acoustical pingers and deployment depths in the CA large mesh drift gillnet fishery targeting swordfish/thresher sharks
- Acoustic pingers produce sounds to warn animals of the presence of the net (required on all large mesh drift gillnet sets)



Required gear configuration on large mesh drift gillnets in California

Results (1996-2009)¹:

- Nearly 50% reduction in cetacean bycatch; and
- no observed beaked whale bycatch

¹ Courten, J.V. and J. Barlow. 2011. Long-term effectiveness, failure rates, and "sensit" properties of acoustic pingers in a gillnet fishery. Marine Technology

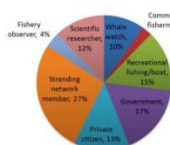
Gear types

For many confirmed entanglement reports, an on-water response is not possible and a photograph or description of the entanglement is all that can be obtained. The origin of the entangling gear (active fishing gear or marine debris) is difficult to identify.

- From 2000-2010, the majority of large whale entanglements reported in California (38%) were identified as trap/pot gear; 30% of reports indicated netting and the source of the entangling gear was unidentified in 32% of reports
- A Fixed Gear Guide characterizing commercial fixed gear fisheries off California, Oregon, and Washington is available to assist responders and managers with identification of the entangling gear: http://www.nmfs.noaa.gov/pd/fixed_gear.htm

Reporting sources

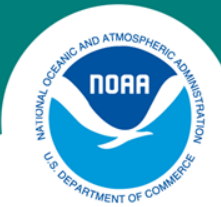
NMFS uses reports to track entanglements and provide the foundation for disentanglement response, if possible. Reporting of entangled whales originates from a variety of sources with the majority coming from on-water observations (figure below). There are greater number of entanglements reported near larger cities such as San Francisco, Los Angeles and San Diego where boating activity is higher. It is important to note that where the entangled whale is initially sighted may not necessarily reflect where the entanglement occurred.



Reporting party for whale entanglement reports in California from 2000 to 2010 (n=82)

How you can help

- ✓ Raise awareness of marine mammal entanglements by sharing this document, the Fixed Gear Guide, brochures, videos, and on the web
- ✓ Take photos of the marine mammal (dorsal back area, fins, fluke/tail, and head) and the entanglement (buoy(s), line(s), and netting)
- ✓ Assess the situation by documenting: mammal species, nature of distress, general condition of the whale, location (GPS), time of last sighting, approximate size, weather, animal speed and heading, and any identifying markings on gear
- ✓ Report entangled whales to the SOS-WHale hotline (1-877-767-9425), and report entangled or stranded dolphins, seals, sea lions, or sea turtles to your local stranding network member. Information can be found at: <http://www.nmfs.noaa.gov/pr/health/networks.htm>
- ✓ Stay with the animal (at a safe distance of 100 yards minimum) until trained help arrives and be prepared to share information with responders



Training/Supplies

Whale disentanglement training/supplies

- annual, west-coast wide
- Level I-IV
disentanglement
specialists
- telemetry buoys/tags, etc

Whale entanglement reporting DVD (national)

Large whale disentanglement workshop



Led by **Ed Lyman** from the Hawaiian Islands
Humpback Whale National Marine Sanctuary



Date: September 13, 2012

Time: 9 am to 4 pm

Location: Cabrillo Marine Aquarium in San Pedro, CA

Participants will learn the importance of assessment, documentation, and monitoring, of an entangled large whale; and how they may safely assist qualified entanglement response teams in these roles and support towards entanglement response.

Documentation and assessment may not only assist in determining how to free the animal, but in garnering information that may reduce entanglement risk for these animals in the future. The workshop will also provide details on how authorized and trained response teams perform the difficult and dangerous task of freeing an entangled large whale, the authorization that is required, the decision process, an overview of the special tools and their use, and a review of established protocols. The workshop is applicable to a wide audience, from the professional mariner who may encounter an entangled whale and may play a supportive role, to the appropriate network member seeking additional training towards possible large whale entanglement response.

Please respond to Lauren Saez (Lauren.Saez@noaa.gov) with the names and e-mail addresses of any participants no later than Tuesday, September 4th. Lunch options are available within walking distance.

Class will be held in the Auditorium
3720 Stephen M. White Dr.
San Pedro, CA

Maps & direction can be found at:
www.cabrillomarineaquarium.org/visit-cma/directions-parking.asp





2013 Large Whale Entanglement Workshop Goals (Portland, OR)

Bring together experts in the fields of marine mammals, fisheries, modeling, bycatch, lost gear/marine debris, and management, to share information relevant to this issue;

Continue to identify data gaps, data needs, and next steps; and

If possible, begin to develop research and outreach priorities.



Priorities Identified

Improve outreach and education, particularly to the fishing industry

Continue gear research to understand mechanisms of large whale entanglements, and investigate the creation of a gear density-based fishery model.

Further investigate elevated risk areas and associated time periods identified by models



Questions for the DCTF EC

Would the fleet be receptive to small outreach meetings to share information on:

- Whale entanglement issue and importance

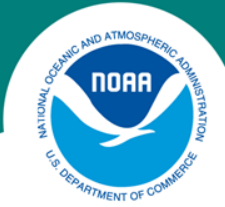
- Reporting marine mammal serious injuries/mortalities

- Outreach materials

- Disentanglement training/supplies

If so, can you suggest venues, timing, any other topics they may be interested in? If not, what are your concerns?

Would the fleet be receptive to considering research to reduce entanglements?



BACKGROUND SLIDES



Marine Mammal Protection Act

Amended in 1994 to include new program for managing marine mammal bycatch:

- 1. Stock Assessment Reports**
- 2. Categorization of Fisheries**
- 3. Registration/Monitoring Program**
- 4. Reporting (Observer) Program**
- 5. Take Reduction Plans**



Stock Assessment Reports

Developed for all U.S. marine mammal stocks

Provide estimates of stock abundance and human caused mortalities and serious injuries (including fishery takes)

Provides estimates of the “potential biological level” or “PBR” (i.e. how many animals per year is it safe to “take”?)





Status of large whales off U.S. West Coast (2013 draft Stock Assessment Report) – *minimum population estimate*

- Non-listed*
 - ENP Gray whales: 18,017
- Endangered
 - Blue whales: 1,551
 - Fin whales: 2,598
 - Humpback whales: 1,876
 - Sperm whales: 751

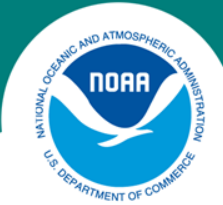




Marine Mammal Protection Act List of Fisheries

- **Annual list of ALL U.S. commercial fisheries**
- **Each fishery placed into 1 of 3 categories based on level of marine mammal take (SI/M)**
-
- **Categorization determines requirements**
- **Category I – “frequent” takes**
Category II – “occasional” takes
Category III – “rare or no known takes”





U.S. West Coast Fisheries

Category I Fisheries (# participants/vessels)

CA thresher shark/swordfish drift gillnet fishery (25)

Covered under Take Reduction Plan

***sperm whales**



Category II Fisheries

CA yellowtail/barracuda and white sea bass *drift* gillnet (50)

***by analogy**

CA halibut/white sea bass *set* gillnet (30)

***humpback whales**





U.S West Coast Fixed Gear Fisheries (cont'd)

Category II Fisheries

CA spot prawn pot (27)

*humpback whales

Eastern North Pacific gray whales

CA, OR, WA Dungeness coastal crab pot (534, 433, 228)

*humpback whales

Eastern North Pacific gray whales

CA/OR/WA sablefish pot (309)

*humpback whales



U.S. West Coast Fixed Gear Fisheries (cont'd)

Category III

CA coonstripe shrimp, rock crab, tanner crab pot/trap (305)

EN Pacific gray whale

CA spiny lobster (225)

EN Pacific gray whale

OR/CA hagfish pot/trap (54)

WA/OR shrimp pot/trap (254)

WA Puget Sound Dungeness crab pot/trap (249)



Marine Mammal Authorization Program

Allows commercial fishers to lawfully "incidentally take" a marine mammal in a commercial fishery

Any owner of a commercial vessel or non-vessel gear engaging in a **Category I or II fishery** must obtain a marine mammal authorization from NMFS in order to lawfully incidentally take a marine mammal in a commercial fishery

Report (form) sent to NMFS within 48 hours following return to port – only serious injuries/mortalities of MM

<http://www.nmfs.noaa.gov/pr/interactions/mmap/>



Take Reduction Plan Process

